

## **ABSTRACT**

A bipolar plate for an electrochemical cell is disclosed. The bipolar plate includes a unitary plate having first and second inlet ports, first and second outlet ports, first flow channels, and second flow channels. A first inlet header channel at one end of the first flow channels is in fluid communication with the first inlet port, and a first outlet header channel at the other end of the first flow channels is in fluid communication with the first outlet port. A second inlet header channel at one end of the second flow channels is in fluid communication with the second inlet port, and a second outlet header channel at the other end of the second flow channels is in fluid communication with the second outlet port. Each of the header channels includes a support surface sufficient to support a membrane-electrode-assembly while providing a fluid flow channel from one end of the respective header channel to the other end.